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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/671,075 | 09/25/2003 | Duncan Johnston-Watt | GILLP015X1 | 5827 |

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| EXAMINER | |
|---|---|
| KISS, ERIC B | |
| ART UNIT | PAPER NUMBER |
| 2192 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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| 3 MONTHS | 12/21/2006 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/671,075 | JOHNSTON-WATT ET AL. | |
| | Examiner | Art Unit | |
| | Eric B. Kiss | 2192 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *52-54,56-67,69-80 and 82-90* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *52-54,56-67,69-80 and 82-90* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 1, 2006, has been entered. Claims 52-54, 56-67, 69-80, and 82-90 are pending.

### *Response to Amendment*

2. Applicant's amendments to the specification appropriately address the objection based on improper use of trademarks. Accordingly, this objection is withdrawn.

3. Applicant's amendments to the claims fail to appropriately address the rejection of claims 78-80 and 82-90 under 35 U.S.C. § 101. See the objection under 37 CFR 1.75(d) and the rejections under 35 U.S.C. §§ 101, 112, as set forth below.

### *Response to Arguments*

4. Applicant's arguments with respect to claims 52-54, 56-67, 69-80, and 82-90 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Objections*

5. Claims 78-80 and 82-90 are objected to under 37 CFR 1.75(d), as reciting terms and phrases that do not find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description. Specifically, claims 78-80 and 82-90 recite, "computer-readable medium".

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 56, 62, 69, 75, 78-80, and 82-90 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As noted above (in the objection to claims 78-80 and 82-90), the term "computer-readable medium" does not find clear support or antecedent basis in the specification. Claims 78-80 and 82-90 recited that a computer system, presumably a collection of collection of hardware and software components, is "embodied in a computer-readable medium". It is unclear how hardware and software components together may be embodied in what would normally be considered a software-carrying medium. Because the specification fails to clarify the relationship between the elements of claims 78-80 and 82-90, these claims are rendered indefinite.

Claims 62, 75, and 88 contain the trademarks JAVA, VISUAL BASIC, and DELPHI. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the

trademarks/trade names are used to identify/describe particular programming languages and, accordingly, the identification/description is indefinite.

Claim 56 recites the limitation "method according to claim 55" in line 1. There is insufficient antecedent basis for this limitation in the claim because claim 55 was canceled. In the interest of compact prosecution, claim 56 is subsequently interpreted as being dependent from claim 52.

Claim 69 recites the limitation "computer program product according to claim 68" in line 1. There is insufficient antecedent basis for this limitation in the claim because claim 68 was canceled. In the interest of compact prosecution, claim 69 is subsequently interpreted as being dependent from claim 65.

Claim 82 recites the limitation "computer system according to claim 81" in line 1. There is insufficient antecedent basis for this limitation in the claim because claim 81 was canceled. In the interest of compact prosecution, claim 82 is subsequently interpreted as being dependent from claim 78.

***Claim Rejections - 35 USC § 101***

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 78-80 and 82-90 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists

of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*. *In re Warmerdam*, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1760 (claim to a data structure per se held nonstatutory).

Data structures not claimed as embodied in computer-readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. *See, e.g., In re Warmerdam*, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Similarly, computer programs claimed as computer listings per se, *i.e.*, the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's

functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. *See In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035.

Claims 78-80 and 82-90 recite a "computer system" comprising a series of elements that can be reasonably interpreted as software, *per se*. As noted above (see the objection to claims 78-80 and 82-90 under 37 CFR 1.75(d) and the rejection of claims 78-80 and 82-90 under 35 U.S.C. § 112), the physical nature of the recited "computer-readable medium" and the functional or structural relationship between such media and the remaining elements of the claims are unclear. The claims do not clearly define any structural and functional interrelationships between the software elements and a computer that would permit the described functionality to be realized when the software is employed as a computer component (*e.g.*, computer program instructions stored on a tangible medium in such a manner that they may be executed by a computer system). Accordingly, claims 78-80 and 82-90 appear to merely set forth, at best, functional descriptive material *per se*, which is nonstatutory.

10. To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. §101 (non-statutory) above are further rejected as set forth below in anticipation of Applicant amending these claims to place them within the four statutory categories of invention.

***Claim Rejections - 35 USC § 103***

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claims 52-54, 56-67, 69-80, and 82-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0034848 A1 (Moore et al) in view of US 6,516,322 (Meredith) and US 5,890,133 (Ernst).

As per claims 52 and 64, *Moore et al.* discloses providing process representations (see, for example, paragraphs [0030] and [0031]), the process representations specifying one or more environmental constraints (see, for example, paragraph [0048]); verifying that the representations are valid (see, for example, paragraph [0047]); generating executables and corresponding test data in accordance with the verified representations (see, for example, paragraph [0064]); testing the executables using the corresponding test data (see, for example, paragraph [0060]); deploying the tested executables in the distributed processing environment (see, for example, paragraphs [0037] through [0039]). *Moore et al.* fails to expressly disclose the combination of: monitoring the performance of the deployed executables to gather process execution information; analyzing information gathered in the monitoring step; and autonomically altering the executables and corresponding test data in accordance with analyzed process execution information. However, *Ernst* teaches a dynamic optimization procedure for such business processes, in which executing processes are monitored and the gathered information is used to modify the executables and test data (see, for example, col. 6, line 66, through col. col. 7, line 36). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to modify the method of *Moore et al.* to include such dynamic optimizations. One would be motivated to

do so to gain the known advantages of optimizing a business process (such as those benefits disclosed in column 1 of *Earnst*). *Moore et al.* further fails to expressly disclose the generating and altering executables being performed in accordance with contextual information. However, *Earnst* further teaches the use of such contextual information as part of the disclosed dynamic optimization (see, for example, col. 6, line 66, through col. col. 7, line 36). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to further modify the method of *Moore et al.* to include such further steps in dynamic optimization as per the teachings of *Earnst*. One would be motivated to do so to gain the known advantages of optimizing a business process (such as those benefits disclosed in column 1 of *Earnst*). *Moore et al.* further fails to expressly disclose the process representations being in a process calculus notation based upon XML. However, *Meredith* teaches the use of such an XML-based process calculus for representing processes (see, e.g., *Meredith* at col. 2, lines 13-38). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to incorporate such XML-based process representations into the system of *Moore et al.* as per the teachings of *Meredith*. One would be motivated to do so to gain the advantages of enhanced integration abilities (see, e.g., *Meredith* at col. 1, lines 36-67).

As per claims 53-58, *Moore et al.* further fails to expressly disclose: altering the generation of executables and test data directly in accordance with analyzed process execution information and repeating the verification, generation, and testing steps (claims 53, 54, and 58), the generating and altering executables being performed in accordance with contextual information, including heuristics (claims 55-57). However, *Earnst* further teaches these steps as part of the disclosed dynamic optimization (see, for example, col. 6, line 66, through col. col. 7,

line 36). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to further modify the method of *Moore et al.* to include such further steps in dynamic optimization as per the teachings of *Earnst*. One would be motivated to do so to gain the known advantages of optimizing a business process (such as those benefits disclosed in column 1 of *Earnst*).

As per claims 59 and 60, *Moore et al.* fails to expressly disclose comparing a set of representations of the analyzed process execution information with an earlier set of process representations and altering the executables to reduce significant disparities between them, and repeating the generating, testing, analyzing and altering steps until the comparison indicates the absence of significant disparity. However, *Earnst* further teaches such comparison and disparity elimination in the dynamic optimization disclosed (see, for example, col. 12, line 44, through col. 14, line 2). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to further modify the method of *Moore et al.* to include such disparity analysis as per the teachings of *Earnst*. One would be motivated to do so to gain the known advantages of optimizing a business process (such as those benefits disclosed in column 1 of *Earnst*).

As per claims 61-63, *Moore et al.* further discloses generating an intermediate version of the verified representation in a third generation language (such as the JAVA programming language or C) and compiling the intermediate version into the executables (see, for example, paragraph [0064]).

As per claims 65-77, these are product versions of the claimed methods discussed above (claims 52-64). *Moore et al.* further discloses such a product implementation (see paragraph [0089]).

As per claims 78-80 and 82-90, these are system versions of the claimed methods discussed above (claims 52-64). *Moore et al.* further discloses such a system implementation (see paragraph [0089]).

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (571) 272-3699. The Examiner can normally be reached on Tue. - Fri., 7:00 am - 4:30 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature should be directed to the TC 2100 Group receptionist: 571-272-2100.

Eric B. Kiss
December 20, 2006